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ABSTRACT

A study investigated the use of riddles beginning with How, When, and Why to see which question type was easier for low-achieving students to answer correctly, and to see if practice could increase the number of correct answers chosen. For comparison purposes, scores were also collected for an average-achieving group without practice, to see if practice could decrease the difference between low and normal achievers. Subjects for the practice group were 48 second and third graders at an inner-city school who were enrolled in a pull-out reading program for students reading below grade level. Subjects for the comparison group were 42 children in the same grades at the same school reading at grade level. Forty-eight riddles (16 of each type) were used. The riddles were read by the examiner to the practice group who would have had difficulty reading them alone. Comparison of pretest and posttest results indicate that How riddles were the easiest to answer for both groups, and When riddles were easier for both groups to answer correctly than Why riddles. The low achievers' response to the riddles was very positive, and the fact that this practice group performed as well as they did suggests that riddles may be a useful tool in refining language concepts in reading. (Tables of data and references are appended.) (NKA)

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Riddles As Facilitators of Inferred Responses

Riddles provide an excellent context in which many comprehension skills can be taught and studied. There are, however, very few instances in which riddles are used in the classroom, despite their role in ensuring positive student motivation (Rupley, Ash, & Blair, 1982) and maximum student interaction with text (Hansen & Pearson, 1983). Riddles are especially useful for the teaching and study of inferential skills. Riddle questions and answers can be thought of as complex sentences involving the same processing of clues, syntax, semantics, and concepts that teachers, texts, and tests demand of students in answering inferential questions. While most riddles begin with the Wh- question words and could be used to study the comprehension of those question words, experimental evidence is lacking.

Research in the area of children's comprehension of complex sentences indicates a significant improvement from grades 2 to 4. The greatest difficulties appear to be syntactic, not conceptual, such as passive voice and atypical sentence structures (Richgels, 1983), and parallel function of competing rules (Sheldon, 1974). Merkin, Wooten, and Bloom (1980) stated that correct answering of question words is difficult due to the increased number of semantic relationships within sentences, while Cairns and Hsu (1977) stated that the difficulty is due to increased cognitive demands. Bloom and his colleagues (1981, 1982) and Hood and Bloom (1979) agree that comprehension and conceptualization may be earlier than the acquisition of the linguistic means to express or encode from complex language. Chomsky (1977) determined that the adult-like concept of Why would not emerge until age 7 or 8, while Ervin-Trip (1970) reported that after 3.0 years of age, many causal explanations are given not only for Why but also for How and When questions.

The question words How, When, and Why are reported in the literature as being the last to be acquired (Smith, 1933; Ervin-Trip, 1970; Tyack & Ingram, 1977). These same question words are also the last to be produced for both second language acquisition (Lightbown, 1978) and for the language delayed (Lee & Ashmore, 1983). Researchers disagree as to which word is understood and expressed first, but all agree that How, When, and Why are among the last of the question words to be comprehended.

This study used riddles beginning with How, When, and Why (called Wh- words) to see which question type was easier for low-achieving students to answer correctly and to see if practice could increase the number of correct answers chosen. For comparison purposes, scores were also collected for an average-achieving group without practice, to see if practice could decrease the difference between low and normal achievers.

METHOD

Subjects

The subjects for the practice group were 48 children (M = 24, F = 24) in the second and third grades of an inner-city school who were enrolled in a pull-out reading program for students 1-2 years behind their grade level in reading; the subjects for the comparison group were 42 children (M = 21, F = 21) in the second and third grades of the same school who were on level in reading.

Material

Forty-eight riddles (16 of each type), each having four multiple choice answers, were assembled. Each of the multiple choice riddle answers was composed of (a) a correct answer which answered the Wh- question word used and provided an inferential or ambiguous response to the riddle question, (b) a distractor answer which answered the Wh- question word used in the

riddle but did not provide an inferential or ambiguous response to the riddle question, and (c) and (d) wrong responses to the Wh- question word used in the riddle question even though the content of the response might appear relevant. When and Why answers were therefore incorrect for a How riddle, When and How answers were incorrect for a Why riddle, and Why and How answers were incorrect for a When riddle. Twelve riddles, four of each question type, were designated as test items and the remaining 36, 12 of each question type, were used in six practice sessions by the practice group.

An example of a How riddle is

How do you say hello to a farmer?

Correct	a.	With a "Hay" you.
Distractor	b.	By holding a rake.
Why	c.	In order to ask him a question.
When	d.	During summer vacation.

Procedure

The practice group and the comparison group each received a pre-test 26 days prior to the post-test, which was the same as the pre-test. The examiner read the riddles and choices aloud as the children read silently. Answers were not given after the pre-test. At the six practice sessions, the children made their choices and then the correct answers were stated, but not discussed. There were six riddles of the same type at each practice session.

A controlled randomization was used to alternate item types and item sets on paired days; How riddles were given on two consecutive days, as were the When and Why riddles. A grid was designed to ensure controlled randomization of answers within items. Analyses of variance were used to measure the relationship between males and females and between question types. Specific comparisons of question type means were made with the Newman-Keuls test.

RESULTS

The only significant sex difference was found for the pre-test practice group, where the males scored higher ($p < .05$) than the females ($F = 4.53$, $df = 1,46$; Male mean = 5.92, S.D. = 1.73; Female mean = 4.79, S.D. = 1.82). All analysis of variance question type comparisons were significant at the .001 level. No interactions between sex and question type were significant.

For the practice group, on both the pre-test and post-test, How was answered correctly significantly more often than When or Why (pre-test: How vs. When, $p < .05$; How vs. Why, $p < .01$; post-test: How vs. When, $p < .01$; How vs. Why, $p < .01$); there were no significant differences between When and Why question types. For the comparison group, on the pre-test, How was chosen correctly more often than Why ($p < .05$), and there were no significant differences between How vs. When and When vs. Why; on the post-test, How was chosen correctly more often than Why ($p < .01$), When was chosen correctly more often than Why ($p < .05$), and there was no significant difference between How vs. When. Table 1 shows the means and standard deviations of correct responses according to question type for both groups, and Table 2 shows the percentage distribution for question type for correct responses and incorrect responses.

Insert Tables 1 and 2 about here

DISCUSSION

How riddles were the easiest to answer correctly for both the low-achieving practice group and the average-achieving comparison group, and When riddles were easier to answer correctly than Why riddles, for both groups. Practice sessions helped the practice group to choose more correct How answers and correct Why answers in the post-test. Practice did not help increase

the percentage of correct When answers chosen. With practice sessions, the scores on the post-test of the low-achieving practice group were comparable to the average-achieving comparison group for How and Why questions, but not for When questions.

How answers were the most favored incorrect answers chosen by the practice group in the When and Why pre-test riddles, but How was no longer the favored incorrect response after practice. As How answers increased in correct use, the incorrect use of How answers also decreased. For the comparison group, in both the pre-and post-test situation, How was the favored incorrect answer for the Why riddles and also for the post-test When riddles.

It should be noted that the correct answers to the riddles were not discussed, only stated in the practice sessions. For those low-achieving students, practice without discussion did not appear to be strong enough to elicit high gains in correct scores. It would be interesting to see if extensive discussion combined with practice would elicit high gains in correct scores.

It is important to recall that the riddles were read to and with the practice group by the examiner. Had the riddles not been read aloud, the practice group would have had very low scores because most of the practice group children would not have been able to read the riddles without aid. Since the response to the task was extremely positive (in agreement with Rupley et al, 1982) by the low-achieving children, the use of riddles seems very motivating even though the vocabulary may be unknown. And the fact that the practice group performed as well as they did demonstrates that riddles may be a useful tool in refining language concepts in reading. It appears that question words should be practiced in themselves so that students' comprehension of question words would not interfere with the answering of comprehension questions used for assessment.

TABLE 1 MEANS AND STANDARD DEVIATIONS OF CORRECT RESPONSES FOR QUESTION TYPE FOR PRACTICE AND COMPARISON GROUPS

		HOW (4 items)	WHEN (4 items)	WHY (4 items)
Practice Group				
Pre-Test	Means	2.29	1.71	1.35
	S.D.	.89	1.06	1.07
Post-Test	Means	2.50	1.58	1.44
	S.D.	1.14	1.00	.89
Comparison Group				
Pre-Test	Means	2.48	1.93	1.67
	S.D.	1.01	.80	1.08
Post-Test	Means	2.69	2.24	1.45
	S.D.	.99	1.17	1.03

TABLE 2 PERCENTAGE OF TOTAL ITEMS CHOSEN

Practice Group

Pre-Test	HOW	WHEN	WHY
Correct	57.29	42.71	33.85
Distractor	15.63	13.54	25.00
When	10.42	X	15.11
Why	16.54	16.15	X
How	X	27.61	26.04

Post-Test	HOW	WHEN	WHY
Correct	62.50	39.58	35.94
Distractor	11.66	23.40	25.59
When	10.13	X	20.22
Why	14.22	21.17	X
How	X	16.53	18.59

Comparison Group

Pre-Test	HOW	WHEN	WHY
Correct	61.90	48.21	41.67
Distractor	16.07	10.71	19.64
When	11.31	X	5.36
Why	10.72	15.48	X
How	X	15.48	33.33

Post-Test	HOW	WHEN	WHY
Correct	67.26	55.95	36.31
Distractor	13.70	14.89	23.81
When	7.14	X	13.70
Why	11.93	11.91	X
How	X	17.27	26.19

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